MESSIANIC RAYS IN THE ATOMIC AGE:
WALTER BENJAMIN IN THE PRESENCE OF RADIOCATIVITY

ESTHER LESLIE

Elements

Some items fell into my hands, part of collection called *Library for Radioactive Afterlife*, brought together and worked on by Susanne Kriemann.1 These objects that Kriemann collected were elements of the mining operations in the Erzgebirge that took place between 1946 and 1989. Here the mineral pitchblende was excavated. The objects comprise a lamp, a scintillation or Geiger counter, a protective suit, headphones, a water bottle and a life saver, a device that produces an atmosphere for 90 minutes, should the oxygen supply fail. There are also, of course, pieces of pitchblende or uraninite, the matter after which all these objects to quested. On this array of objects clings something of the grime from where they once came, even if they have been received into new environments: the studio, the art gallery. Something invisible clings to them – a context, a history, a set of rumours, the ideology of a former state, and some radioactive agency. This library of an afterlife exists under the label radioactive. We ourselves exist under the label radioactive. We live within radioactive environments. These are invisibly there and working on us. This archive of a radioactive afterlife, before it was an archive for us, as art project or research work, was already an archive. It was an archive of an atomic atmosphere, of a place where natural deposits of uranium in ore meant that the local radioactivity index was high. There, in Radium Palace, health seekers soak in radon-rich waters, as a cure, hoping for the penetration of qualities into their bodies. There, in the Erzgebirgewere the samples from which Marie and Pierre Curie discovered the fatal element of radium. There, in the nuclear quest of the post-war epoch, were slave labourers, political prisoners, mining for death chemicals. The firm responsible for extraction disguised itself in taking the name Wismut, the German name for a quite harmless mineral, Bismuth. Under this cover, the nuclear arsenal

of the USSR was brought into the realm of possibility. The hills were perforated by a precarious labyrinth of tunnels, and on the surface the substance was pounded to dust that penetrated unprotected lungs. The toxicity of the regime matched the toxicity of the soil. Labour conditions improved in the area over time. The work of those who were faithful to their employer and their state was rewarded. Livelihoods were secured, until the East German state decayed and died. It left behind contaminated ground – to be subjected to purification until 2045.

Pitchblende

This is an old name for Uraninite. These labels describe an amorphous, black, pitchy ore, a mash of uranium, radium, lead, thorium, rare earth elements and helium. Pitch is a name for tarry dark denseness, but etymologically it signifies scorching heat or hell. In German, its form as *pech* means bad luck. And blende – a complex word that means to screen or shade or blind or deceive – denotes an obscurity, a covering over or perhaps too intense a flash, meaning that nothing can be seen in the over-exposure. The miners gave the substance this name because its density made them suspect that it contained much metal, but they could not yet recover it. Later, pitchblende came to be processed near the place of its recovery, becoming yellowcake, a yellowy powder which is then further treated to make fuel for nuclear reactors or atomic bombs.

Uranium

Natural uranium is made of three isotopes, each of which is radioactive: uranium-238, uranium-235, and uranium-234. The nuclei of this element are unstable, engaged in giving off, or emitting, particles, or sometimes absorbing them. As it releases its alpha and beta particles into what surrounds it, uranium is said to decay. Sometimes too it emits gamma radiation, an electromagnetic radiation. This emission was discovered accidentally. Roentgen's x-rays – x standing for unknown

– had demonstrated their passage through flesh or wood at the end of 1895. Henri Becquerel had stored some fluorescing crystals - a uranium compound called potassium uranyl sulphate - in a black cloth with a photographic plate and a copper Maltese cross, and, some days later, when he removed it from its dark drawer he found an image of the cross on the paper. No sunlight had needed to produce an image. The crystal had emitted rays of radiation. These weak rays were for the most part ignored, but Marie Curie experimented with them and, over time, conceived the notion of radioactivity to describe the emanation of minuscule particles and energetic waves from the uranium atom. Uranium decays. It sheds its life, and may take the liveliness of others with it. But it might also be seen as a store. Slowly the particles seep or drift away. Slowly, it holds together. As it decays it produces progeny or what are called daughters. It yields more fatal life. Uranium-238 has a half-life of about 4.5 billion years; that is, half the atoms in any sample will decay in that amount of time. Uranium-238 decays by alpha emission into thorium-234, which itself decays with a half-life of 24.1 days by beta emission to protactinium-234, which decays, with a half-life of 1.17 minutes, by beta emission to uranium-234. On and on it goes, accelerating or slowing down in its non-life-non-death until it reaches the stable isotope lead-206.

Atom

Uranium's nuclei are large and subject to fission, that is to splitting into lighter fragments, if bombarded by neutrons. Energy is released. Chain reactions ensue, at least in the case of uranium-235. Uranium-238 cannot sustain a chain reaction, but it may be converted to plutonium-239, which can. Plutonium-239, the rarest of the rare elements in nature, virtually non-existent, produced by bombing uranium-238 with neutrons in a nuclear reactor, was used in the first atomic bomb, which was tested on 16 July, 1945 and, then, in the one dropped on Nagasaki on 9 August, 1945.

Storage

When in August 1945, an atomic bomb named ‘Little Boy’ blasted over Hiroshima, its radiation penetrated the atoms of what surrounded it. The bomb sent matter, including itself and organic life, into perverse states. Matter responded to human input. Each atom was radicalised, so to speak. The jawbone of a person who was less than a mile from the bomb's hypocentre acted subsequently as a dosimeter, the precise dosage of radioactivity received into the bone ascertained through electron-spin-resonance, which analysed the spectral presence of the free radicals of carbon dioxide produced in the paramagnetism of the bone as a result of its irradiation. Photographs of this can be found in the crevices of the internet. Every jawbone in the area was a dosimeter. Only some bones make it into the archive for future technologies to unlock. These bones speak, and it is a truth that is more than human.2

Intermission: A Case, A Ray, An X

> His last archive remains a secret: the briefcase that Walter Benjamin carried over the Pyrenees in September 1940 is lost… Only one document that was transported in it survives. ... Any more detailed information is lacking. What is certain, however, is that the briefcase had some sort of texts by Benjamin in it.
> *Walter Benjamin’s Archive*3

1.Walter Benjamin’s suitcase: There was a black bag. It was very heavy. It was carried by Benjamin and by those others who were crossing the Pyrenees with him to escape persecution by Fascists at the end of September 1940. ‘Old Benjamin: under no circumstances would he part with his ballast, that black bag; we would have to drag the monster across the mountains.’4 Some sort of texts were in the case, including an x-ray. He carried with him an x-ray of his chest. When Max Horkheimer made inquiries of the Spanish border police in 1940, concerning the heavy bag, he was told that a number of

objects were taken into custody, comprising a leather briefcase, such as might be used by a businessman, an ID card, a man's watch, a smoking pipe, six photographs, glasses, periodicals, some letters and a handful of other papers, whose contents are not listed, and an X-ray photograph. Only one document that was conveyed in the case survives, making its way into the archive. This was an authenticated letter from 8 May 1940, in which Max Horkheimer confirms that Benjamin is a member of the Institute for Social Research in New York, and that he endorses his researches as extremely helpful for the Institute. The pipe had an amber handle. The golden pocket watch had a tatty nickel chain. The glasses had a shabby case. The x-ray was supplemented by a medical note. Benjamin had in his possession also $70 and 500 francs. None of these objects sound heavy, none sound like ballast. Perhaps the x-ray photograph emanated heavy rays, the power to sear something or to obliterate, cut through and wipe out the past and the future, issuing from itself effects as devastating as the uses of a nuclear bomb, which sucks up a city into dust and plasma. Walter Benjamin died. He took his life, in Portbou. X did not mark the site of Benjamin's grave. The grave was unmarked. X is the lost treasure that may or may not have existed in the suitcase – some speak of the missing final version of the *Arcades Project*. All that might be surmised: the x that was the x-ray, like the New Angel, by Klee, which fluttered above Benjamin's desk wherever he lived, had been on a journey with him.

2.Benjamin's medical case: Earlier that year, on 6 April, Benjamin had written to his friend and employer Horkheimer, reporting on the analysis made possible by the x-ray. Hypertension was causing congestive heart failure. A specialist doctor recommended rest in the countryside. Perhaps a walk through the Pyrenees, under other circumstances, would have been just the ticket for his recuperation. Benjamin informed Horkheimer of the diagnosis, in the hope that the Institute that Horkheimer oversaw would provide money. Some came. It

was never enough. And money was not all he needed. But the x-ray was cheated of its divinatory message. Death came by other means. Benjamin cheated his own heart, stopped it with pills, and under any other circumstances, other than fascisizing ones, his death might have been a criminal case, for the poison was provided by Arthur Koestler. Others have speculated that it was not the pills that killed him, but the Stalinist, or maybe Nazi, agents who frequented the town. He had, so to speak, an X against his name.

3.What is an X-ray?: If an x-ray was pointing towards Benjamin's death from heart failure, it also pointed the other way towards life. As Benjamin grew towards death in 1940, the technique and science of X-ray crystallography made it possible for scientists to generate data about the smallest parts of matter, atoms and molecules. X-rays beamed through a crystal, diffract off the atoms that form it, and so crystallographers receive a coded pattern that – when de-coded – discloses a crystal's internal atomic structure. In the early days, there were investigations of substances known to be crystals, familiar ones such as salt, but soon the techniques of crystallography were used on the materials of life, such as, most famously, the X-ray crystallographic analysis of DNA that led to the elucidation of its double-helix structure in 1953. X-rays model what comes to be called 'the code of life'.

4.X-ray Truths: Does the x-ray of Benjamin's chest constitute a truer portrait of him than the ones made by the women photographers he knew – Gisele Freund, Charlotte Wolff, Germaine Krull? Does getting inside him, smashing up against his solidities, make a better image, a greater exposure? Is it the logical destination of what Benjamin proposes in his *Short History of Photography*:

> Photography, with its technical aids - freeze-framing, image enlargement - make this accessible. One learns of this optical-unconscious only through

> photography, just as the instinctual-unconscious is discovered in psychoanalysis. The composition of structures, cellular tissue, all that stuff with which technology, medicine reckons to deal, is primarily more related to the camera than the atmospheric landscape or the soulful portrait.5

Is Benjamin's sickly chest a revelation of his interiority, or is it more an exposure of what he called, gleefully and approvingly, modernistically, an interior, like a car has an interior? His chest under x-ray is nothing more significant than a chest of drawers.

5.X Marks the Spot: Benjamin wrote of Edgar Allen Poe's detective story, *Man in the Crowd*, that it is 'an x-ray picture of a detective story', since 'the drapery represented by the crime has disappeared. The mere armature has remained.'6 The veil is ripped away. The aura has gone. The bones alone show – and it is them that give form, the bare bones, the reality of the matter. True interpretation is an x-ray of the work, writes Adorno. The x-ray reveals 'all aspects of context, contrast and construction that lie hidden beneath the surface of the perceptible sound', beneath the sealed – distracting - surface of the image.

6.X is like X: Benjamin makes an analogy in his essay on the work of art in the age of its technical reproducibility. The painter is a magician and the cameraman is a surgeon. 'The painter, while working, observes a natural distance from the subject; the cameraman, on the other hand, penetrates deep into the subject's tissue.'7 The painter stands outside the subject, healing sickness by laying on hands. The cameraman cuts in, cuts into the visual field, into the world, chops it up in montage, breaks up time, so it seems. But the cameraman is not the editor, does not really do this work of recombining fragments. The cameraman is better understood as an x-ray, which penetrates the filmed body without the need for actual cuts. The cameraman absorbs that body onto filmstock,

but in so doing saturates it in filmicness. In this metaphor though, the work of film remains diagnostic, an image of what exists, even beneath the surface, rather than curative. This image might show what is wrong, but cannot right it.

6.The Language of X: Benjamin was interested in recording reality, in photographs and also in gramophones. He chases the work of art in the age of its technical reproducibility. After Benjamin was gone, in the 1950s, a strange phenomenon developed in the Soviet Union: bone music (*roentgenizdat*). These were bootleg recordings of music that had been banned in the USSR, pressed onto discarded x-rays.8 Rock and Roll, Jazz, products of what Adorno termed the culture industry, but functioning in those conditions, through this medium, in those Cold War days, as a rebellion, a dissonant dissidence. The sound of the music on the x-ray discs is poor. They even say you have to listen through that sound to catch the wisps of music. The x-ray communicates, but not in a language we have yet learnt.

Spectrum

Walter Benjamin was captivated by the strange light of phosphorescence, light that decays, weakening its emission of energy over time; and he thought about light at the edges of the spectrum, ultra-violet and infra-red, which sees the world, or lets us see it, differently to how it appears in the clear light of a clear day. In an essay on Paris, as it is represented in books and photography, written for *Vogue Germany*, in 1929, Benjamin explains the type of arcane knowledge that ultraviolet and infra-red deal in: ‘There is an ultra-violet and an infra-red knowledge of this city’.9 What he means is that there are other knowledges of the city, accessed through imagination and fantasy, and these become the settings of curious narratives or the odd glimpses caught in photographic images. There is the city *and* the city – the latter its literary or photographic analogue that shadows and brightens and

undermines and overwrites the one of daily inhabitation. The extreme light of ultra-violet, for Benjamin, reflects too some sort of divinatory force, which is perhaps its most unfathomable and most desired aspect. Memory is made analogous by Benjamin to ultra-violet rays, which illuminates in the Book of Life an invisible, prophetic script glossing the text. In memory, we look back on what has been and see how the signs of what was to come flash up under those strange rays: 'Don't you see in the flames a sign from yesterday evening you only now understand?'10 It is like the light glowering malevolently from the glass of milk that Cary Grant brings upstairs to his wife in Alfred Hitchcock's *Suspicion* (1941). That light, effected by a lightbulb concealed by Hitchcock in the milk, is the knowledge of its poisonous intent that will have come to be true. Transposed to the question of revolution, a sensitivity to this ultra-violet light – that is to a full spectrum analysis of historical powers – understands the irruptive forces at work in history. Benjamin writes:

> Just as a physicist determines the presence of ultraviolet light in the solar spectrum, so the historical materialist determines the presence of a messianic force in history.11

But it cannot be predicted, or cultivated, just as the colour of ultra-violet light cannot be known by the lenses of human eyes. The messianic force, which the Bible's *Revelations* describes as a light emanating from the glory of God, is one which works weakly through history, in every small stab at liberation, but its full illumination, while much desired, is difficultly accessible.

Exposures

History leaves a strange archive, one liable to be maltreated, ignored, misunderstood, abused. What new disclosures of historical materials could meet Benjamin's full spectrum demands? What archive lies around us, invisible ones, impenetrable ones, ones that

await new histories, new presents, new attitudes toward the past, new technologies of disclosure and exposure. But what are we looking for in the archive and how do we know when we have found it or it us?

Fog

Photography is a fragile archiving mode. Photographs – whose vulnerability to environment makes imagery possible at all, when light rays strike film stock - are vulnerable subsequently to environment. Photography archives the environment. In 2003, and still in the archive that is the web, Kodak warn of the 'Airport Baggage Scanning Equipment Can Jeopardize Your Unprocessed Film' and 'Suggestions for Avoiding Fogged Film'. Photographs make tangible the vulnerability of all bodies and the limits to any capacity to keep clear, to evade, to be unensnared, not knotted, and yet still not to know anything.

Fata Mining

The ground is an archive of contamination, of violence, of repeated inequities that occur on its surface: chemical seepages, ecological distresses. The ground communicates this. Located deep within is also that which is older than can be imagined – elements melted and stretched at the beginning of time. Extracted from the earth are these same elements with ever greater rapacity. Their and our future suggests that they may be used up, rare earth elements melded into smartphones, gases such as helium puffed away in a billion MRI scans or floating off-world in a cavalcade of balloons. What made the stars will not outlive them. Ice cores are an archive of atmospheric shift. Many melted when the electricity failed in the Ice Core Lab at the University of Alberta, in Edmonton, Canada. Sand is an archive of the stones that have been ground up. Much sand, this ancient ground up stone, is now bound into concrete, distributed across the urban zones of the globe, and irretrievable. But might the future emerge differently in an image supplied by colour, that medium of

imagination. In the 1830s, colour burst out of the darkness of old dead matter. Black coal released the entire spectrum of colour and turned it into aniline dyes. This was an industrial augmentation of the palette of availability. We live amongst it. But since forever and into the future, there were and will be colours that cannot really ever be fully captured by technological machinery, those that Goethe called ‘fugitive’ colours, and which result from a curious interplay of light and looking – the bands of colour that appear in a thin wire is held in front of a candle frame, the interference that occurs with oil on water, or on the skin of soap bubbles, or mica schist, or liquid crystals viewed under crossed polarisers, which hint at the gap between their difficultly accessible presence and the difficultly renderable world of colours within the display screens that that they make possible.

Afterdeath

Radiation cannot be seen by eyes, but it can be seen on photographs. Radiation meets photographic expression – the many exposures of exploding atoms and, in their aftermath, it could come to light when autoradiography allowed for the documentation of radiated objects and animals. Where the x-ray melted skin to reveal bones, the autoradiograph dispensed with apparatus, just as it dispensed with light, making traces, images, of itself for no-one, and imbuing what it touches with its impossibly energetic touch with lives, and half-lives and fatality for aeons to come. Such toxicity needs to be stored away, in the manner undertaken by Susanne Kriemann, stored within the construct that is art, which works with and through contaminations of categories, peculiar visibility, questionable presences.

[1] In book form, the project is accessed through Susanne Kriemann, *P(ech) B(lende), Library for Radioactive Afterlife*, Spector Books, Leipzig, 2016.
[2] See Thomas Keenan and Eyal Weizman, *Mengele's Skull: The Advent of a Forensic Aesthetics*, Sternberg Press, Portikus, Berlin, 2012, p. 67.
[3] *Walter Benjamin's Archive: Images, Texts, Signs*, eds., Ursula Marx, Gudrun Schwarz, Michael Schwarz, Erdmut Wizisla, Verso, London, 2007, p.1.
[4] Susan Buck-Morss, *The Dialectics of Seeing*, MIT Press, Cambrige, MA., 1989, p. 323.
[5] Walter Benjamin, *On Photography*, Reaktion, London, 2015, p. 68.
[6] Walter Benjamin, *Charles Baudelaire: A Lyric Poet in the Epoch of High Capitalism*, Verso, London, 1997, p.48.
[7] Walter Benjamin, Thesis XI, *The Work of Art in the Age of its Technical Reproducibility*, c.1936.
[8] Stephen Coates, *X-Ray Audio*, Strange Attractor Press, London, 2015.
[9] Benjamin, *On Photography*, p.134.
[10] Walter Benjamin, *One Way Street*, Harvard Univ. Press, Cambridge, MA, 2016, p.88.
[11] Walter Benjamin: *Selected Writings, 1938-1940, Volume 4; Volumes 1938-1940*, Harvard Univ. Press, Cambridge, MA, 2003, p.402.